CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

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Job No.: CTCE/BBMP/W.No.08/KRIDL/AGG/2013-14 : 24.03.2014

TEST REPORT ON COARSE AGGREGATES
IS 383-1970 (RA- 2002)

Client : **Asst. Executive Engineer,** Kodigehalli Sub Division, BBMP, Bangalore.

Agency : **Technical Manager,** KRIDL, Bangalore.

Name of Work : Improvements to roads and drains at Shanthivana in Ward No.08, BBMP, Bangalore.

Reference : AEE/KH/434/2013-14 Dated: 26.03.2014

Date of Testing : 24.03.2014

Material : 40mm Aggregates

Total Wt. of Aggregates in gms **10000**

Is Sieve Size in mm	Weight Retained (gm)	Retained Weight in %	Cumulative Retained Weight in %	Cumulative Weight Passing in %	Spec.Limits
80	0	0	0	100	100
40	200	2.00	2.00	98.00	95-100
20	5050	50.50	52.50	47.50	30-70
10	3385	33.85	86.35	13.65	10-35
4.75	985	9.85	96.20	3.80	0-5

Note:

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Job No.: CTCE/BBMP/W.No.08/KRIDL/CUBE/2013-14

26.04.2014

TEST REPORT ON CONCRETE CUBES

Client	: **Asst. Executive Engineer,** Kodigehalli Sub Division, BBMP, Bangalore.
Agency	: **Technical Manager,** KRIDL, Bangalore.
Name of the work	: Improvements to roads and drains at Shanthivana in Ward No.08, BBMP, Bangalore.
Reference	: AEE/KH/434/2013-14 Dated: 26.03.2014
Sample ID	: Cement Concrete
Size of cubes	: 150mmx150mmx150mm
Cross Sectional Area	: 22500 mm^2
Technical Reference	: IS: 516-1959 (Reaffirmed 2008)
Grade of Concrete	: M_{15}
Compressive Strength as on	: 28th day

Sl.No.	Date of casting	Date of testing	Weight of cube (Kg)	Failure load (KN)	Compressive strength (N/mm^2)
1	29.03.2014	26.04.2014	8.198	355.9	15.82
2	29.03.2014	26.04.2014	8.280	369.6	16.43
3	29.03.2014	26.04.2014	8.336	379.3	16.86

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Job No.: CTCE/BBMP/W.No.08/KRIDL/WMM/Gradation/2013-14 05.04.2014

GRADATION FOR WMM

MORTH TABLE-400-11

Client : **Asst. Executive Engineer,** Kodigehalli Sub Division, BBMP, Bangalore.

Agency : **Technical Manager,** KRIDL, Bangalore.

Name of Work : Improvements to roads and drains at Shanthivana in Ward No.08, BBMP, Bangalore.

Reference : AEE/KH/434/2013-14 Dated: 26.03.2014

Date of Testing : 05.04.2014

Material : WMM

Sample Location : WMM Mix Plant Oven Dry Wt (gm): **8670**

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Spec.Limits
53	0	0	0	100	100
45	205	205	2.4	97.6	95-100
22.4	2515	2720	31.4	68.6	60-80
11.2	1590	4310	49.7	50.3	40-60
4.75	1295	5605	64.6	35.4	25-40
2.36	1010	6615	76.3	23.7	15-30
0.600	995	7610	87.8	12.2	8-22
0.075	660	8270	95.4	4.6	0-8

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Job No.: CTCE/BBMP/W.No.08/KRIDL/WMM/S-T/2014-15 05.04.2014

DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Client	**Asst. Executive Engineer,** Kodigehalli Sub Division, BBMP, Bangalore.
Agency	**Technical Manager,** KRIDL, Bangalore.
Name of Work	Improvements to roads and drains at Shanthivana in Ward No.08, BBMP, Bangalore.
Reference	AEE/KH/434/2013-14 Dated: 26.03.2014
Technical Reference	IS 2386(Part 1) 1963 (RA 2011)
Type of Mix	Wet Mix Macadam
Date of Testing	05.04.2014

Result : Flakiness Index = **11.98%**

Elongation Index = **13.23%**

Result : Combined Flakiness & Elongation index 25.21%

Comments:

Maximum allowable Flakiness & Elongation Index for Wet Mix Macadam is 30%

Note:

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Job No.: CTCE/BBMP/W.No.08/KRIDL/SDBC/AIV/2013-14 26.04.2014

Aggregate Impact Value

IS: 2386 Part IV

Client	**Asst. Executive Engineer,** Kodigehalli Sub Division, BBMP, Bangalore.
Agency	**Technical Manager,** KRIDL, Bangalore.
Name of the Work	Improvements to roads and drains at Shanthivana in Ward No.08, BBMP, Bangalore.
Reference	AEE/KH/434/2013-14 Dated: 26.03.2014
Source / Location	Hot Mix Plant, Bangalore
Type of Mix	Semi Dense Bituminous Concrete
Date of Testing	26.04.2014

Sl No.	Details	Trial No. 1	Trial No. 2	Average
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	389	390	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	86	87	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	303	303	
4	Aggregate Impact value = percent fines 100* (W_2/W_1)%	22.11	22.31	22.21

Comments:

→ Maximum allowable Aggregate Impact value for Semi Dense Bituminous Concrete is 27%

Note:

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Job No.: CTCE/BBMP/W.No.08/KRIDL/SDBC/Shape_T/2013-14 : 26.04.2014

DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Client	: **Asst. Executive Engineer,** Kodigehalli Sub Division, BBMP, Bangalore.
Agency	: **Technical Manager,** KRIDL, Bangalore.
Name of Work	: Improvements to roads and drains at Shanthivana in Ward No.08, BBMP, Bangalore.
Reference	: AEE/KH/434/2013-14 Dated: 26.03.2014
Technical Reference	: IS 2386(Part 1) 1963 (RA 2007)
Type of Mix	: Semi Dense Bituminous Concrete
Date of Testing	: 26.04.2014

Result : Flakiness Index = **12.55%**

Elongation Index = **13.98%**

Result : Combined Flakiness & Elongation index **26.53%**

Comments:

Maximum allowable Flakiness & Elongation Index for Semi Dense Bituminous Concrete is 30%

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Job No.: CTCE/BBMP/W.No.08/KRIDL/SDBC/AGG/2013-14 29.04.2014

Aggregate Gradation Test

IS : 2386 Part I

Client	**Asst. Executive Engineer,** Kodigehalli Sub Division, BBMP, Bangalore.
Agency	**Technical Manager,** KRIDL, Bangalore.
Name of the Work	Improvements to roads and drains at Shanthivana in Ward No.08, BBMP, Bangalore.
Reference	AEE/KH/434/2013-14 Dated: 26.03.2014
Sample I / D	Hot Mix Plant, Bangalore
Type of Mix	Semi Dense Bituminous Concrete (SDBC)
Date of Testing	29.04.2014

Total Weight of Sample: **5100** gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	Grade-II As per MORTH	Remarks
13.2	0	0.0	0	100	100	Gradation satisfies Grade-II MORTH specification
9.5	410	8.0	8.04	91.96	90-100	
4.75	2685	52.6	60.69	39.31	35-51	
2.36	655	12.8	73.53	26.47	24-39	
1.18	480	9.4	82.94	17.06	15-30	
0.3	255	5.0	87.94	12.06	9-19	
0.075	295	5.8	93.73	6.27	3-8	

Total Weight of Sample: **5200** gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	Grade-II As per MORTH	Remarks
13.2	0	0.0	0	100	100	Gradation satisfies Grade-II MORTH specification
9.5	380	7.3	7.31	92.69	90-100	
4.75	2590	49.8	57.12	42.88	35-51	
2.36	825	15.9	72.98	27.02	24-39	
1.18	435	8.4	81.35	18.65	15-30	
0.3	425	8.2	89.52	10.48	9-19	
0.075	420	8.1	97.60	2.40	3-8	

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